P1 1030932

THE UNITED STATES OF AMERICA

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July 02, 2003

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APPLICATION NUMBER: *60/385,485*
FILING DATE: *June 04, 2002*
RELATED PCT APPLICATION NUMBER: *PCT/US03/17369*

By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

N. WILLIAMS
Certifying Officer

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SUBMITTED OR TRANSMITTED IN
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53 (c).

Express Mail Label No. EV 050843273US

INVENTOR(S)

Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
CASIMIR JOHAN	CRAWLEY	CARMEL, INDIANA

☐ *Additional inventors are being named on the next separately numbered sheets attached hereto*

TITLE OF THE INVENTION (280 characters max)

WIRELESS EFM SIGNAL LOSS DETECTION

CORRESPONDENCE ADDRESS

Direct all correspondence to:

☐ Customer Number

Type Customer Number here

Place Customer Number Bar Code Label here

OR

☒ Firm or Individual Name — JOSEPH S. TRIPOLI, THOMSON MULTIMEDIA LICENSING INC.

Address	PATENT OPERATIONS.
Address	P. O. BOX 5312
City	PRINCETON
State	NJ
ZIP	08543-5312
Country	USA
Telephone	609-734-9444
Fax	609-734-9700

ENCLOSED APPLICATION PARTS (check all that apply)

☒ Specification *Number of Pages* — 2

☐ Drawing(s) *Number of Sheets*

☐ Application Data Sheet. See 37 CFR 1.76

☐ CD(s), Number

☐ Other (specify)

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)

☐ Applicant claims small entity status. See 37 CFR 1.27.

☐ A check or money order is enclosed to cover the filing fees

☒ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number: 07-0832

☐ Payment by credit card. Form PTO-2038 is attached.

FILING FEE AMOUNT ($) — 160

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____.

Respectfully submitted,

SIGNATURE

TYPED or PRINTED NAME — JOSEPH J. KOLODKA

TELEPHONE 609 734-9744

Date — June 4, 2002

REGISTRATION NO. (if appropriate) — 39,731

Docket Number: — PU020269

BEST AVAILABLE COPY

FEE TRANSMITTAL
for FY 2002

Patent fees are subject to annual revision.

Complete if Known	
Application Number	N/A
Filing Date	HEREWITH
First Named Inventor	Casimir Johan Crawley
Examiner Name	N/A
Group / Art Unit	N/A
Attorney Docket No.	PU020269

TOTAL AMOUNT OF PAYMENT ($) 160

METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number: 07-0832

Deposit Account Name: THOMSON multimedia Licensing Inc.

☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☐ Payment Enclosed:

☒ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Fee ($)	Small Entity Fee Code	Fee ($)	Fee Description	Fee Paid
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	160

SUBTOTAL (1) ($) 160

2. EXTRA CLAIM FEES

		Extra Claims	Fee from below	Fee Paid
Total Claims	-20 ** =	0	X	= 0
Independent Claims	-3 ** =	0	X	= 0
Multiple Dependent			X	= 0

Large Entity Fee Code	Fee ($)	Small Entity Fee Code	Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	84	202	42	Independent claims in excess of 3
104	280	204	140	Multiple dependent claim, if not paid
109	84	209	42	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)
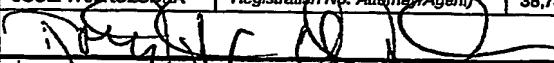
3. ADDITIONAL FEES

Large Entity Fee Code	Fee ($)	Small Entity Fee Code	Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	400	216	200	Extension for reply within second month	
117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
128	1,960	228	980	Extension for reply within fifth month	
119	320	219	160	Notice of Appeal	
120	320	220	160	Filing a brief in support of an appeal	
121	280	221	140	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive – unavoidable	
141	1,280	241	640	Petition to revive – unintentional	
142	1,280	242	640	Utility issue fee (or reissue)	
143	460	243	230	Design issue fee	
144	620	244	310	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17 (q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 0

SUBMITTED BY				Complete (if applicable)	
Name (Print/Type)	JOSEPH J. KOLODKA	Registration No. Attorney/Agent	38,731	Telephone	609-734-9744
Signature				Date	June 4, 2002

Wireless EFM Signal Loss Detection

Brief Summary Of The Invention

A Lyra Wireless receiver board microprocessor initializes an EFM decoder in order to recover the original digital audio stream from incoming EFM data sent by a Lyra Wireless transmitter board. The microprocessor continually queries the EFM decoder and determines whether the decoder's EFM PLL is locked or unlocked. If the EFM PLL is unlocked, then the microprocessor will perform an EFM decoder soft reset and re-initialization.

A problem has been observed whereby a receiver board will cease its EFM decoding after long periods of transmitter board idleness. Further investigation revealed that the decoder's EFM PLL had unlocked. Receiver board resetting or power cycling was the only recovery method. This problem and recovery method is confusing and inconvenient to the customer. This invention automatically detects and recovers from this unlocked condition.

Description Of Invention

Figure 1contains a Lyra Wireless receiver board block diagram. The Motorola 68HC05 microprocessor continually polls the Philips SAA7325 EFM decoder's EFM PLL lock status over the I2C bus.

Figure 2 contains a flowchart that shows the receiver board's 68HC05 PLL unlocked condition detection and recovery algorithm. The 68HC05 first initializes the SAA7325 decoder. The 68HC05 continually polls the SAA7325 for an EFM PLL unlocked condition. If an unlocked condition is detected, the 68HC05 resets and re-initializes the SAA7325 decoder.

The important new feature of this invention is automatic EFM PLL unlocked condition detection and recovery. User awareness or intervention is not required. This invention was successfully implemented on all existing Lyra Wireless hardware on January 30, 2002 with only receiver board firmware modifications. This invention has been incorporated into all future receiver board firmware releases.

Receiver Board

Stereo ← Stereo DAC ← [I2S digital audio] ← SAA7325 EFM decoder ← [EFM-modulated data] ← 900 MHz RF reception circuitry containing frequency synthesizer

I2C bus

Microwire bus

68HC05 microprocessor
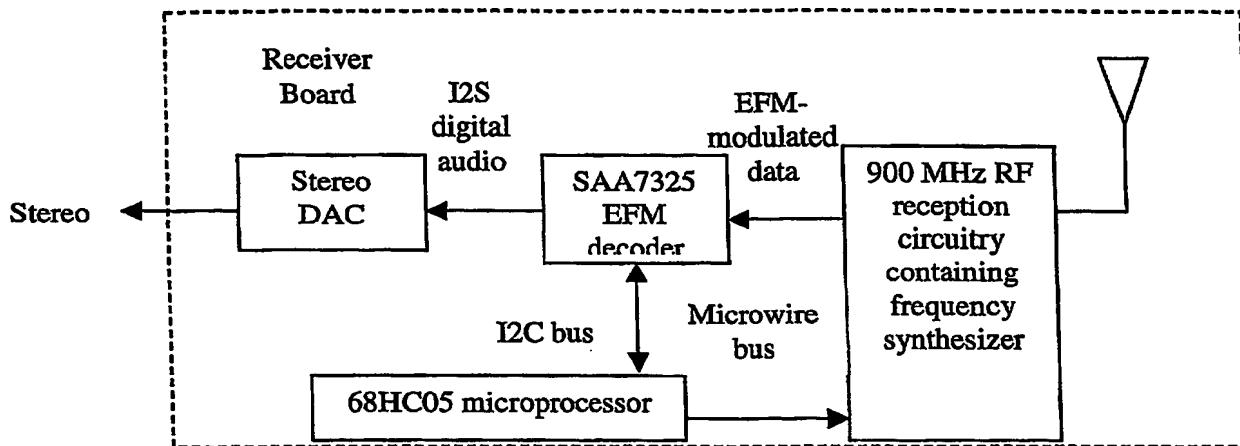
Figure 1 Lyra Wireless Receiver Board Block Diagram

Soft reset and initialize SAA7392 decoder

↓

Poll SAA7392 decoder

↓

Is decoder's EFM PLL unlocked?

Yes   No
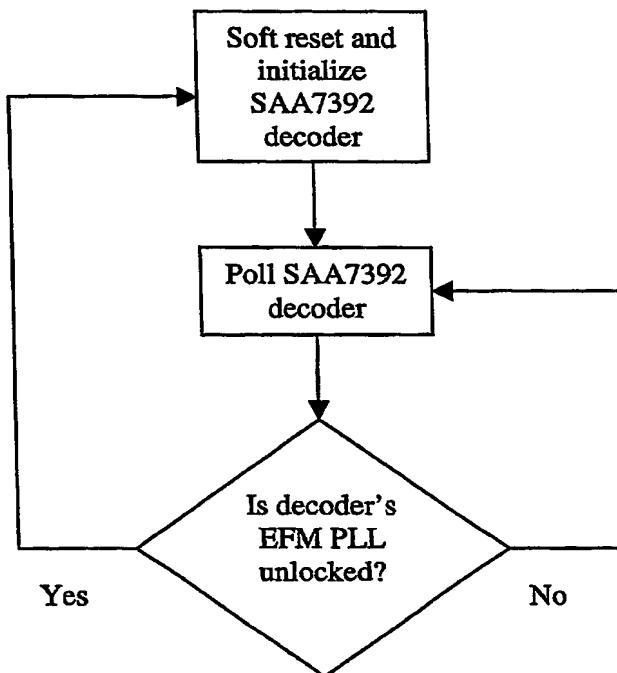
**Figure 2 Lyra Wireless PLL Unlocked Condition Detection and Recovery Algorithm**